What is claimed is:

1. A method for making a magnetic sensor for a disk drive read head, the method comprising the steps of:

fabricating a giant magnetoresistive stack on a surface of a layer of bottom shield material, the giant magnetoresistive stack including an etch stop layer positioned on an end of the giant magnetoresistive stack opposite the surface of the wafer and a buffer layer positioned on the etch stop layer;

depositing an insulating material on the giant magnetoresistive stack and the surface of the layer of bottom shield material;

planarizing the insulating material to form a top surface of the insulating material lying in a plane adjacent to or passing through the buffer layer;

etching the buffer layer; and

depositing a top shield layer on the insulating material and the giant magnetoresistive stack, the top shield layer making electrical contact with the giant magnetoresistive stack.

2. A method for making a magnetic sensor for a disk drive read head according to claim 1, wherein the step of planarizing the insulating material is performed using chemical machining polishing.

3. A method for making a magnetic sensor for a disk drive read head according to claim 1, wherein the step of planarizing the insulating material is performed using a vacuum etch process.

3(4). A method for making a magnetic sensor for a disk drive read head according to claim 1, the method further comprising the steps of:

etching the etch stop layer prior to the step of depositing a top shield layer on the insulating material and the giant magnetoresistive stack.

5 4. A method for making a magnetic sensor for a disk drive read head according to claim 1, wherein:

the insulating material comprises a material selected from the group of Al_2O_3, AlN, AlON, SiO_2, SiN and SiON.

6

5. A method for making a magnetic sensor for a disk drive read head according to claim 1, wherein:

the etch stop layer comprises a material selected from the group of Au, Cu, NiFe, CoFe, NiCoFe, Al_2O_3, and Ta.

7 6. A method for making a magnetic sensor for a disk drive read head according to claim 1, wherein:

the buffer layer comprises a material selected from the group of Ta, W, Ti, Cu, SiO_2 and SiN.

8 7. A magnetic sensor made in accordance with the method of claim 1.

9 8. A method for making a magnetic sensor for a disk drive read head, the method comprising the steps of:

fabricating a giant magnetoresistive stack on a surface of a layer of bottom shield material;

depositing an insulating material on the giant magnetoresistive stack on the surface of the layer of bottom shield material;

depositing a self-planarizing material on the insulating material;

planarizing the self planarizing material and the insulating material using a vacuum etch process that removes the self planarizing material and the insulating material at the same rate until a surface of the insulating material lies in a plane adjacent to an end of the giant magnetoresistive stack; and

deposing a top shield layer on the insulating material and the giant magnetoresistive stack.

10 9. A method for making a magnetic sensor for a disk drive read head according to claim 8, wherein:

the insulating material comprises a material selected form the group of alumina, SiO_2, SiN.

11 10. A method for making a magnetic sensor for a disk drive read head according to claim 8, wherein:

the self-planarizing material comprises a material selected from the group of a spin on glass and a photo resist.

12 ~~11.~~ A magnetic sensor made in accordance with the method of claim 8.

13 ~~12.~~ A method for making a magnetic sensor for a disk drive read head, the method comprising the steps of:

fabricating a giant magnetoresistive stack on a surface of a layer of bottom shield material, the giant magnetoresistive stack including an etch stop layer positioned on an end of the giant magnetoresistive stack opposite the surface and a buffer layer positioned on the etch stop layer;

depositing an insulating material on the giant magnetoresistive stack and the surface of the layer of bottom shield material;

depositing a self-planarizing material on the insulating material;

planarizing the self-planarizing material and the insulating material using chemical machining polishing to form a top surface of the insulating material lying in a plane adjacent to or passing through the buffer layer;

etching the buffer layer; and

depositing a top shield layer on the insulating material and the giant magnetoresistive stack, the top shield layer making electrical contact with the giant magnetoresistive stack.

14 ~~13.~~ A method for making a magnetic sensor for a disk drive read head according to claim 12, the method further comprising the steps of:

etching the etch stop layer prior to the step of depositing a top shield layer on the insulating material and the giant magnetoresistive stack.

15 ~~14.~~ A method for making a magnetic sensor for a disk drive read head according to claim 12, wherein:

the insulating material comprises a material selected from the group of Al_2O_3, AlN, AlON, SiO_2, SiN and SiON.

16 ~~15.~~ A method for making a magnetic sensor for a disk drive read head according to claim 12, wherein:

the etch stop layer comprises a material selected from the group of Au, Cu, NiFe, CoFe, NiCoFe, Al_2O_3, and Ta.

17 ~~16.~~ A method for making a magnetic sensor for a disk drive read head according to claim 12, wherein:

the buffer layer comprises a material selected from the group of Ta, W, Ti, Cu, SiO_2 and SiN.

18 ~~17.~~ A magnetic sensor made in accordance with the method of claim 12.

19 ~~18.~~ A method for making a magnetic sensor for a disk drive read head, the method comprising the steps of:

fabricating a giant magnetoresistive stack on a surface of a layer of bottom shield material;

depositing a self-planarizing material on the giant magnetoresistive stack on the surface of the layer of bottom shield material;

planarizing the self planarizing material using a vacuum etch process that removes the self planarizing material until a surface of the self planarizing material lies in a plane adjacent to an end of the giant magnetoresistive stack; and

depositing a top shield layer on the self-planarizing material and the giant magnetoresistive stack.

20 ~~19.~~ A method for making a magnetic sensor for a disk drive read head according to claim 18, wherein:

the self-planarizing material comprises a material selected from the group of a spin on glass and a photo resist.

21 ~~20.~~ A magnetic sensor made in accordance with the method of claim 18.